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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/622,028 | 07/16/2003 | Guillermo Rozas | TRAN-P045 | 2248 |

7590 08/10/2006

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| EXAMINER |
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TRAN, DENISE

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| ART UNIT | PAPER NUMBER |
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2185

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,028

Applicant(s)

ROZAS ET AL.

Examiner

Denise Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-12 and 33-37 is/are allowed.
- 6) ☒ Claim(s) 1,3,4,13-15,22,25,26,28,31 and 32 is/are rejected.
- 7) ☒ Claim(s) 2,5,16-21,23,24,27,29 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/5/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-37 are presented for examination
2. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 6/5/06 has been entered.
3. Prosecution on the merits of this application is reopened on claims 1-5,13-21, 22-32 considered unpatentable for the reasons indicated below:
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3-4, 13-15, 22, 25-26, 28, and 31-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Lipasti, US 6,487,639 (hereinafter Lipasti).

As per claims 1 and 13, Lipasti teaches a data cache (i.e., a fast storage buffer, e.g., col. 6, lines 30-35 or fig. 3, el. 60) comprising:

5. Claims 1, 3-4, 13-15, 22, 25-26, 28, and 31-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Lipasti, US 6,487,639 (hereinafter Lipasti).

As per claims 1 and 13, Lipasti teaches a data cache (i.e., a fast storage buffer, e.g., col. 6, lines 30-35 or fig. 3, el. 60) comprising:

a plurality of cache lines, each cache line including a state indicator for indicating anyone of plurality of states, wherein the plurality of states includes a speculative state to enable keeping track of speculative modification to data in the respective cache line (e.g. col. 6, lines 5-11, lines 20-25), wherein the speculative state enables a speculative modification to the data in the respective cache line to be made permanent in response to a first operation performed upon reaching a particular instruction boundary during speculative execution of instructions (e.g. col. 6, lines 35-55; col. 8, lines 50-60), and wherein the speculative state enables the speculative modification to the data in the respective cache line to be undone in response to a second operation performed upon failing to reach said particular instruction boundary during speculative execution of instructions (e.g. col. 8, line 65 to col. 9, line 25) and a processor operative to perform a speculative store operation to the data cache (e.g. fig. 2, el. 12; col. 8, lines 40-45; col. 5, line 40 to col. 6, line 3).

Claim 22, Lipasti teaches a method of managing speculative data modifications in a data cache, said method comprising:

in response to a speculative modification to data in a cache line, setting a state indicator of said cache line to a speculative state (e.g., col. 8, lines 55 to col. 9, line 10; col. 6, lines 40-55);

if said speculative modification to said data is desired to be made permanent, changing said state indicator to a first state in response to a first operation performed upon reaching a particular instruction boundary during speculative execution of instructions (e.g., col. 8, lines 55 to col. 9, line 10; col. 6, lines 40-55), and

if said speculative modification to said data is desired to be undone, changing said state indicator of said line to a second state in response to a second operation performed upon failing to reach said particular instruction boundary during speculative execution of instructions (e.g., col. 8, line 65 to col. 9, line 5 and col. 9, lines 13-35).

Claim 28, Lipasti teaches a method of managing speculative data modifications in a speculative cache buffer, said method comprising:

receiving from a data cache a cache line in a speculative state and having speculative modification to the data within said cache line (e.g., col. 8, lines 55 to col. 9, line 10; col. 6, lines 40-55);

setting a state indicator of said cache line to a speculative state in said speculative cache buffer (e.g., col. 8, lines 55 to col. 9, line 10; col. 6, lines 40-55);

if said speculative modification to said data is desired to be made permanent, changing said state indicator to a first state in response to a first operation performed upon reaching a particular instruction boundary during speculative execution of instructions (e.g., col. 8, lines 55 to col. 9, line 10; col. 6, lines 40-55); and

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if said speculative modification to said data is desired to be undone, changing said state indicator of said cache line to a second state in response to a second operation performed upon failing to reach said particular instruction boundary during speculative execution of instructions (e.g., col. 8, line 60 to col. 9, line 5; col. 9, lines 13-35).

As per claims 3, 14, 25, and 31, Lipasti teaches the first operation as a commit operation (e.g. col. 9, lines 5-13).

As per claims 4, 15, 26, and 32, Lipasti teaches the use of the second operation as a rollback operation (e.g. col. 9, lines 13-35).

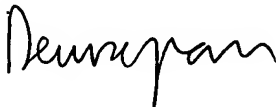
6. Claims 6-12 and 33-37 are allowable over the prior art of record.

7. Claims 2,5, 16-21, 23-24, 27 and 29-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise Tran whose telephone number is (571) 272-4189. The examiner can normally be reached on Monday, Thursday, and Friday from 9:00 a.m. to 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim, can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Denise Tran

7/24/06